

ABSTRACT OF THE DISCLOSURE

A micro integrated cardiac pacemaker includes a control unit for outputting a control signal according to cardiograph information, heart stimulating means for stimulating heart tissue in response to the control signal, cardiograph information extracting means for extracting cardiograph information and outputting it to the control unit, and a power supply unit for supplying drive power. The power supply unit is a biological fuel cell that takes out electrons by oxidation of a biological fuel. The biological fuel cell includes an anode and a cathode. An oxidase of a biological fuel and a mediator are immobilized on the cathode. Blood and/or body fluid are used as an electrolytic solution, and a biological fuel and oxygen in the blood and/or the fluid are used. The biological fuel cell is attached to the end of a catheter and implanted into the heart, and the catheter is withdrawn, without incising the breast.